

107TH CONGRESS
2D SESSION

H. R. 5688

To promote and coordinate global change research, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

OCTOBER 16, 2002

Mr. UDALL of Colorado introduced the following bill; which was referred to the Committee on Science, and in addition to the Committees on the Budget, and International Relations, for a period to be subsequently determined by the Speaker, in each case for consideration of such provisions as fall within the jurisdiction of the committee concerned

A BILL

To promote and coordinate global change research, and for other purposes.

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*

3 **SECTION 1. SHORT TITLE.**

4 This Act may be cited as the “Global Change Re-
5 search and Data Management Act of 2002”.

TITLE I—GLOBAL CHANGE RESEARCH

SEC. 101. FINDINGS AND PURPOSE.

(a) FINDINGS.—The Congress makes the following findings:

(1) Industrial, agricultural, and other human activities, coupled with an expanding world population, are contributing to processes of global change that are significantly altering the Earth habitat.

(2) Such human-induced changes, in conjunction with natural fluctuations, may lead to significant alterations of world climate patterns. Over the next century, these changes could adversely effect world agricultural and marine production, coastal habitability, biological diversity, human health, global social and political stability, and global economic activity.

(3) Although the United States Global Change Research Program has made significant contributions to understanding Earth's climate and the anthropogenic influences on Earth's climate and its ecosystems, that Program has not produced sufficient information designed to be of use to decision-makers.

1 (4) Development of effective policies to prevent,
2 mitigate, and adapt to global change will rely on
3 continued improvement in scientific understanding
4 of global environmental processes and development
5 of information that is of use to decisionmakers at
6 the local, regional, and national levels.

7 (5) Developments in interdisciplinary Earth
8 sciences, global observing systems, and satellite and
9 computing technologies make possible significant sci-
10 entific understanding of global changes and their ef-
11 fects, and have resulted in the significant expansion
12 of environmental data and information.

13 (6) Predictions of future climate conditions for
14 specific regions have considerable uncertainty and
15 are unlikely to be confirmed in a time period nec-
16 essary to inform decisions on land, water, and re-
17 source management. However, improved under-
18 standing of global change should be used to assist
19 decisionmakers in the development of policies to en-
20 sure that ecological, social, and economic systems
21 are resilient under a variety of plausible climate fu-
22 tures.

23 (b) PURPOSE.—The purpose of this title is to provide
24 for the continuation and coordination of a comprehensive
25 and integrated United States research program which will

1 assist the Nation and the world to understand, assess, pre-
2 dict, and respond to the effects of human-induced and nat-
3 ural processes of global change.

4 **SEC. 102. DEFINITIONS.**

5 For purposes of this title—

6 (1) the term “global change” means changes in
7 the global environment (including alterations in cli-
8 mate, land productivity, oceans or other water re-
9 sources, atmospheric chemistry, biodiversity, and ec-
10 ological systems) that may alter the capacity of the
11 Earth to sustain life;

12 (2) the term “global change research” means
13 study, monitoring, assessment, prediction, and infor-
14 mation management activities to describe and under-
15 stand—

16 (A) the interactive physical, chemical, and
17 biological processes that regulate the total
18 Earth system;

19 (B) the unique environment that the Earth
20 provides for life;

21 (C) changes that are occurring in the
22 Earth system; and

23 (D) the manner in which such system, en-
24 vironment, and changes are influenced by
25 human actions;

1 (3) the term “interagency committee” means
2 the interagency committee established under section
3 103;

4 (4) the term “Plan” means the National Global
5 Change Research Plan developed under section 105;
6 and

7 (5) the term “Program” means the United
8 States Global Change Research Program established
9 under section 104.

10 **SEC. 103. INTERAGENCY COOPERATION AND COORDINA-**
11 **TION.**

12 (a) ESTABLISHMENT.—The President shall establish
13 an interagency committee to ensure cooperation and co-
14 ordination of all Federal research activities pertaining to
15 human-induced and natural processes of global change for
16 the purpose of increasing the overall effectiveness and pro-
17 ductivity of Federal global change research efforts.

18 (b) FUNCTIONS OF THE INTERAGENCY COM-
19 MITTEE.—The interagency committee shall—

20 (1) serve as the forum for developing the Plan
21 and for overseeing its implementation;

22 (2) serve as the forum for developing the vul-
23 nerability assessment under section 107;

24 (3) ensure cooperation among Federal agencies
25 with respect to global change research activities;

1 (4) work with academic, State, industry, and
2 other groups conducting global change research, to
3 provide for periodic public and peer review of the
4 Program;

5 (5) cooperate with the Secretary of State in—

6 (A) providing representation at inter-
7 national meetings and conferences on global
8 change research in which the United States
9 participates; and

10 (B) coordinating the Federal activities of
11 the United States with programs of other na-
12 tions and with international global change re-
13 search activities;

14 (6) work with appropriate Federal, State, re-
15 gional, and local authorities to ensure that the Pro-
16 gram is designed to produce information needed to
17 develop policies to reduce the vulnerability of the
18 United States and other regions to global change;
19 and

20 (7) identify additional decisionmaking groups
21 that may use information generated through the
22 Program.

1 **SEC. 104. UNITED STATES GLOBAL CHANGE RESEARCH**
2 **PROGRAM.**

3 The President shall establish an interagency United
4 States Global Change Research Program to improve un-
5 derstanding of global change and to provide periodic as-
6 sessments of the vulnerability of the United States and
7 other regions to global change. The Program shall be im-
8 plemented in accordance with the Plan.

9 **SEC. 105. NATIONAL GLOBAL CHANGE RESEARCH PLAN.**

10 (a) IN GENERAL.—The President shall develop a Na-
11 tional Global Change Research Plan for implementation
12 of the Program. The Plan shall contain recommendations
13 for global change research. The President shall submit the
14 Plan to the Congress within 1 year after the date of enact-
15 ment of this Act, and shall submit a revised Plan at least
16 once every 4 years thereafter. In the development of the
17 Plan, the President shall solicit input from appropriate
18 Federal, State, regional, and local authorities regarding
19 the types of information needed by them in developing
20 policies to reduce society's vulnerability to global change.

21 (b) CONTENTS OF THE PLAN.—The Plan shall—

22 (1) establish, for the 10-year period beginning
23 in the year the Plan is submitted, the goals and pri-
24 orities for Federal global change research which
25 most effectively advance scientific understanding of
26 global change and provide information of use to

1 Federal, State, regional, and local authorities in the
2 development of policies relating to global change;

3 (2) describe specific activities, including re-
4 search activities, data collection and data analysis
5 requirements, predictive modeling, participation in
6 international research efforts, and information man-
7 agement, required to achieve such goals and prior-
8 ities;

9 (3) identify relevant programs and activities of
10 the Federal agencies that contribute to the Program
11 directly and indirectly;

12 (4) set forth the role of each Federal agency in
13 implementing the Plan;

14 (5) consider and utilize, as appropriate, reports
15 and studies conducted by Federal agencies, the Na-
16 tional Research Council, or other entities;

17 (6) make recommendations for the coordination
18 of the global change research activities of the United
19 States with such activities of other nations and
20 international organizations, including—

21 (A) a description of the extent and nature
22 of international cooperative activities;

23 (B) bilateral and multilateral efforts to
24 provide worldwide access to scientific data and
25 information; and

1 (C) improving participation by developing
2 nations in international global change research
3 and environmental data collection;

4 (7) detail budget requirements for Federal glob-
5 al change research activities to be conducted under
6 the Plan; and

7 (8) catalog the type of information identified by
8 appropriate Federal, State, regional, and local au-
9 thorities needed to develop policies to reduce soci-
10 ety's vulnerability to global change.

11 (c) RESEARCH ELEMENTS.—The Plan shall include
12 at a minimum the following research elements:

13 (1) Global measurements, establishing world-
14 wide observations necessary to understand the phys-
15 ical, chemical, and biological processes contributing
16 to changes in the Earth system on all relevant spa-
17 tial and time scales.

18 (2) Information on economic and demographic
19 trends that contribute to changes in the Earth sys-
20 tem and that influence society's vulnerability to
21 global change.

22 (3) Development of indicators to document
23 global change, including changes in species distribu-
24 tion, extent of glaciations, and changes in sea level.

1 (4) Studies of historical changes in the Earth
2 system, using evidence from the geological and fossil
3 record.

4 (5) Predictions, using quantitative models of
5 the Earth system to simulate global and regional en-
6 vironmental processes and trends.

7 (6) Focused research initiatives to understand
8 the nature of and interaction among physical, chem-
9 ical, biological, and social processes related to global
10 change.

11 (d) INFORMATION MANAGEMENT.—The Plan shall
12 incorporate, to the extent practicable, the recommenda-
13 tions relating to data acquisition, management, and
14 archiving made by the interagency climate and other glob-
15 al change data management working group established
16 under section 203.

17 (e) NATIONAL ACADEMY OF SCIENCES EVALUA-
18 TION.—The President shall enter into an agreement with
19 the National Academy of Sciences under which the Acad-
20 emy shall—

21 (1) evaluate the scientific content of the Plan;
22 and

23 (2) recommend priorities for future global
24 change research.

1 (f) NATIONAL GOVERNORS ASSOCIATION EVALUA-
2 TION.—The President shall seek to enter into an agree-
3 ment with the National Governors Association Center for
4 Best Practices under which that Center shall—

5 (1) evaluate the utility to State, local, and re-
6 gional decisionmakers of the anticipated information
7 outputs of the Program for development of policies
8 to reduce vulnerability to global change; and

9 (2) recommend priorities for future global
10 change research.

11 (g) PUBLIC PARTICIPATION.—In developing the
12 Plan, the President shall consult with academic, State, in-
13 dustry, and environmental groups and representatives.
14 Not later than 90 days before the President submits the
15 Plan, or any revision thereof, to the Congress, a summary
16 of the proposed Plan shall be published in the Federal
17 Register for a public comment period of not less than 60
18 days.

19 **SEC. 106. BUDGET COORDINATION.**

20 (a) IN GENERAL.—The President shall provide gen-
21 eral guidance to each Federal agency participating in the
22 Program with respect to the preparation of requests for
23 appropriations for activities related to the Program.

24 (b) CONSIDERATION IN PRESIDENT’S BUDGET.—The
25 President shall identify in each annual budget request sub-

mitted to the Congress under section 1105 of title 31,
United States Code, those items in each agency's annual
budget which are elements of the Program.

SEC. 107. VULNERABILITY ASSESSMENT.

Within 1 year after the date of enactment of this Act,
and at least once every 4 years thereafter, the President
shall submit to the Congress an assessment which—

(1) integrates, evaluates, and interprets the
findings of the Program and discusses the scientific
uncertainties associated with such findings;

(2) analyzes the effects of global change on the
natural environment, land and water resources, and
biological diversity in—

(A) major geographic regions of the United
States; and

(B) other continents;

(3) analyzes the effects of global change on ag-
riculture, energy production and use, transportation,
human health and welfare, and human social and
economic systems, including providing information
about the differential impacts on specific geographic
regions within the United States, on people of dif-
ferent income levels within those regions, and for
rural and urban areas within those regions;

1 (4) analyzes the vulnerability of different geo-
2 graphic regions of the world to global change, in-
3 cluding analyses of the implications of global change
4 for international assistance, population displacement,
5 and national security;

6 (5) analyzes current trends in global change,
7 both human-induced and natural, and projects major
8 trends for the subsequent 25 to 100 years; and

9 (6) analyzes the adoption rates of technologies
10 available to reduce greenhouse gas emissions, with
11 an evaluation of the market and policy barriers sup-
12 pressing their adoption in the United States.

13 **SEC. 108. ANNUAL REPORT.**

14 Each year at the time of submission to the Congress
15 of the President's budget request, the President shall sub-
16 mit to the Congress a report on the activities conducted
17 pursuant to this title, including—

18 (1) a summary of the achievements of the Pro-
19 gram during the period covered by the report;

20 (2) an analysis of the progress made toward
21 achieving the goals of the Plan; and

22 (3) a list of the State, local, and regional deci-
23 sionmakers identified as potential users of the infor-
24 mation generated through the Program and a de-
25 scription of the consultations with this community

1 coordinated through the work of the interagency
2 committee.

3 **SEC. 109. RELATION TO OTHER AUTHORITIES.**

4 The President shall ensure that relevant research ac-
5 tivities of the National Climate Program, established by
6 the National Climate Program Act (15 U.S.C. 2901 et
7 seq.), are considered in developing national global change
8 research efforts.

9 **SEC. 110. REPEAL.**

10 The Global Change Research Act of 1990 (15 U.S.C.
11 2921 et seq.) is repealed.

12 **TITLE II—CLIMATE AND OTHER**
13 **GLOBAL CHANGE DATA MAN-**
14 **AGEMENT**

15 **SEC. 201. FINDINGS AND PURPOSES.**

16 (a) FINDINGS.—The Congress makes the following
17 findings:

18 (1) Federal agencies have a primary mission to
19 manage and archive climate and other global change
20 data obtained through their research, development,
21 or operational activities.

22 (2) Maintenance of climate and global change
23 data records is essential to present and future stud-
24 ies of the Earth's atmosphere, biogeochemical cycles,
25 and climate.

1 (3) Federal capabilities for the management
2 and archiving of these data has not kept pace with
3 advances in satellite and other observational tech-
4 nologies that have vastly expanded the type and
5 amount of information that can be collected.

6 (4) Proposals and plans for expansion of global
7 observing networks should include plans for the
8 management of data to be collected and budgets re-
9 flecting the cost of support for management and
10 archiving of data.

11 (b) PURPOSES.—The purposes of this title are to es-
12 tablish climate and other global change data management
13 and archiving as Federal agency missions, and to establish
14 Federal policies for managing and archiving climate and
15 other global change data.

16 **SEC. 202. DEFINITIONS.**

17 For purposes of this title—

18 (1) the term “metadata” means information de-
19 scribing the content, quality, condition, and other
20 characteristics of climate and other global change
21 data, compiled, to the maximum extent possible, con-
22 sistent with the requirements of the “Content Stand-
23 ard for Digital Geospatial Metadata” (FGDC–STD–
24 001–1998) issued by the Federal Geographic Data

1 Committee, or any successor standard approved by
2 the working group; and

3 (2) the term “working group” means the inter-
4 agency climate and other global change data man-
5 agement working group established under section
6 203.

7 **SEC. 203. INTERAGENCY CLIMATE AND OTHER GLOBAL**
8 **CHANGE DATA MANAGEMENT WORKING**
9 **GROUP.**

10 (a) ESTABLISHMENT.—The President shall establish
11 an interagency climate and other global change data man-
12 agement working group to make recommendations for co-
13 ordinating Federal climate and other global change data
14 management and archiving activities.

15 (b) MEMBERSHIP.—The working group shall include
16 the Administrator of the National Aeronautics and Space
17 Administration, the Administrator of the National Oceanic
18 and Atmospheric Administration, the Secretary of Energy,
19 the Secretary of Defense, the Director of the National
20 Science Foundation, the Director of the United States Ge-
21 ological Survey, the Archivist of the United States, or
22 their designees, and representatives of any other Federal
23 agencies the President considers appropriate.

24 (c) REPORTS.—Not later than 1 year after the date
25 of enactment of this Act, the working group shall transmit

1 a report to the Congress containing the elements described
2 in subsection (d). Not later than 3 years after the initial
3 report under this subsection, and not later than once every
4 4 years subsequent to that, the working group shall trans-
5 mit reports updating the previous report.

6 (d) CONTENTS.—The reports and updates required
7 under subsection (c) shall—

8 (1) include recommendations for the establish-
9 ment, maintenance, and accessibility of a catalog
10 identifying all available climate and other global
11 change data sets;

12 (2) identify climate and other global change
13 data collections in danger of being lost, and rec-
14 ommend actions to prevent such loss;

15 (3) identify gaps in climate and other global
16 change data, and recommend actions to fill those
17 gaps;

18 (4) identify effective and compatible procedures
19 for climate and other global change data collection,
20 management, and retention, and make recommenda-
21 tions for ensuring their use by Federal agencies and
22 other appropriate entities;

23 (5) develop and propose a coordinated strategy
24 for funding and allocating responsibilities among

1 Federal agencies for climate and other global change
2 data collection, management, and retention;

3 (6) make recommendations for ensuring that
4 particular attention is paid to the collection, man-
5 agement, and archiving of metadata; and

6 (7) make recommendations for ensuring a uni-
7 fied and coordinated Federal capital investment
8 strategy with respect to climate and other global
9 change data collection, management, and archiving.

10 **TITLE III—INTERNATIONAL CO-**
11 **OPERATION IN GLOBAL**
12 **CHANGE RESEARCH**

13 **SEC. 301. FINDINGS AND PURPOSES.**

14 (a) FINDINGS.—The Congress makes the following
15 findings:

16 (1) Pooling of international resources and sci-
17 entific capabilities will be essential to a successful
18 international global change program.

19 (2) While international scientific planning is al-
20 ready underway, there is currently no comprehensive
21 intergovernmental mechanism for planning, coordi-
22 nating, or implementing research to understand
23 global change and to mitigate possible adverse ef-
24 fects.

1 (3) An international global change research
2 program will be important in building future con-
3 sensus on methods for reducing global environmental
4 degradation.

5 (4) The United States, as a world leader in en-
6 vironmental and Earth sciences, should help provide
7 leadership in developing and implementing an inter-
8 national global change research program.

9 (b) PURPOSES.—The purposes of this title are to—

10 (1) promote international, intergovernmental
11 cooperation on global change research;

12 (2) involve scientists and policymakers from de-
13 veloping nations in such cooperative global change
14 research programs; and

15 (3) promote international efforts to provide
16 technical and other assistance to developing nations
17 which will facilitate improvements in their domestic
18 standard of living while minimizing damage to the
19 global or regional environment.

20 **SEC. 302. INTERNATIONAL DISCUSSIONS.**

21 (a) GLOBAL CHANGE RESEARCH.—The President
22 shall direct the Secretary of State to initiate discussions
23 with other nations leading toward international protocols
24 and other agreements to coordinate global change research

1 activities. Such discussions should include the following
2 issues:

3 (1) Allocation of costs in global change research
4 programs, especially with respect to major capital
5 projects.

6 (2) Coordination of global change research
7 plans with those developed by international organiza-
8 tions such as the International Council on Scientific
9 Unions, the World Meteorological Organization, and
10 the United Nations Environment Program.

11 (3) Establishment of global change research
12 centers and training programs for scientists, espe-
13 cially those from developing nations.

14 (4) Development of innovative methods for
15 management of international global change research,
16 including the use of new or existing intergovern-
17 mental organizations for the coordination or funding
18 of global change research.

19 (5) Establishment of international offices to
20 disseminate information useful in identifying, pre-
21 venting, mitigating, or adapting to the possible ef-
22 fects of global change.

23 (b) ENERGY RESEARCH.—The President shall direct
24 the Secretary of State (in cooperation with the Secretary
25 of Energy, the Secretary of Commerce, the United States

1 Trade Representative, and other appropriate Federal
2 agents) to initiate discussions with other nations leading
3 toward an international research protocol for cooperation
4 on the development of energy technologies which have
5 minimally adverse effects on the environment. Such dis-
6 cussions should include the following issues:

7 (1) Creation of an international cooperative
8 program to fund research related to energy effi-
9 ciency, solar and other renewable energy sources,
10 and passively safe and diversion-resistant nuclear re-
11 actors.

12 (2) Creation of an international cooperative
13 program to develop low-cost energy technologies
14 which are appropriate to the environmental, eco-
15 nomic, and social needs of developing nations.

16 (3) Exchange of information concerning envi-
17 ronmentally safe energy technologies and practices,
18 including those described in paragraphs (1) and (2).

19 **SEC. 303. GLOBAL CHANGE RESEARCH INFORMATION OF-**
20 **FICE.**

21 Not later than 180 days after the date of enactment
22 of this Act, the President shall establish an Office of Glob-
23 al Change Research Information. The purpose of the Of-
24 fice shall be to disseminate to foreign governments, busi-
25 nesses, and institutions, as well as the citizens of foreign

1 countries, scientific research information available in the
2 United States which would be useful in preventing, miti-
3 gating, or adapting to the effects of global change. Such
4 information shall include results of scientific research and
5 development on technologies useful for—

6 (1) reducing energy consumption through con-
7 servation and energy efficiency;

8 (2) promoting the use of solar and renewable
9 energy sources which reduce the amount of green-
10 house gases released into the atmosphere;

11 (3) developing replacements for
12 chlorofluorocarbons, halons, and other ozone-deplet-
13 ing substances which exhibit a significantly reduced
14 potential for depleting stratospheric ozone;

15 (4) promoting the conservation of forest re-
16 sources which help reduce the amount of carbon di-
17 oxide in the atmosphere;

18 (5) assisting developing countries in ecological
19 pest management practices and in the proper use of
20 agricultural and industrial chemicals; and

21 (6) promoting recycling and source reduction of
22 pollutants in order to reduce the volume of waste
23 which must be disposed of, thus decreasing energy
24 use and greenhouse gas emissions.

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